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saving energy and
taxpayer dollars in
federal facilities

Purchasing Specifications for Energy-Efficient Products

Legal Authorities

Federal agencies are required by the Energy Policy Act of 2005 (P.L. 109-58) and Federal Acquisition Regulations (FAR) Subpart 23.2 to specify and buy ENERGY STAR®-qualified products or, in categories with no ENERGY STAR label, FEMP-designated products which are among the highest 25 percent of equivalent products for energy efficiency.

Performance Requirement for Federal Purchases

Refrigerator Type	Total Volume ^a	Annual Energy Use ^b
Single-Door Manual	≤ 2.4 cu. ft.	255 kWh/year or less
Single-Door Manual	2.5 to 4.4 cu. ft.	275 kWh/year or less
Single-Door Manual	4.5 to 6.4 cu. ft.	295 kWh/year or less
Single-Door Manual	≥ 6.5 cu. ft.	315 kWh/year or less
Single-Door Automatic	≤ 2.4 cu. ft.	305 kWh/year or less
Single-Door Automatic	2.5 to 4.4 cu. ft.	325 kWh/year or less
Single-Door Automatic	4.5 to 6.4 cu. ft.	345 kWh/year or less
Single-Door Automatic	≥ 6.5 cu. ft.	365 kWh/year or less
Bottom-Mount Freezer	≤ 18.4 cu. ft.	475 kWh/year or less
Bottom-Mount Freezer	18.5 to 20.4 cu. ft.	485 kWh/year or less
Bottom-Mount Freezer	≥ 20.4 cu. ft.	495 kWh/year or less
Top-Mount Freezer	≤ 10.4 cu. ft.	340 kWh/year or less
Top-Mount Freezer	10.5 to 12.4 cu. ft.	360 kWh/year or less
Top-Mount Freezer	12.5 to 14.4 cu. ft.	380 kWh/year or less
Top-Mount Freezer	14.5 to 16.4 cu. ft.	400 kWh/year or less
Top-Mount Freezer	16.5 to 18.4 cu. ft.	420 kWh/year or less
Top-Mount Freezer	18.5 to 20.4 cu. ft.	440 kWh/year or less
Top-Mount Freezer	20.5 to 22.4 cu. ft.	460 kWh/year or less
Top-Mount Freezer	22.5 to 24.4 cu. ft.	480 kWh/year or less
Top-Mount Freezer	≥ 24.5 cu. ft.	500 kWh/year or less
Side-by-Side Freezer	≤ 20.4 cu. ft.	560 kWh/year or less
Side-by-Side Freezer	20.5 - 22.4 cu. ft.	580 kWh/year or less
Side-by-Side Freezer	22.5 - 24.4 cu. ft.	600 kWh/year or less
Side-by-Side Freezer	≥ 25.5 cu. ft.	620 kWh/year or less

a) Total volume is the sum of the refrigerator and freezer volumes.

b) Annual energy use is based on DOE test procedure (10 CFR 430, Sub-Part B, Appendix E).

Buying Energy-Efficient Refrigerators

When buying refrigerators from commercial sources, select products that are ENERGY STAR-qualified (see *For More Information*), all of which meet the annual energy use in the *Performance Requirement* table. Some manufacturers display the ENERGY STAR label on



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FEMP Designated Product: Residential Refrigerators



complying products. For products that don't display the ENERGY STAR, check the annual energy use listed on the EnergyGuide label for models that meet this *Specification*.

Performance requirements apply to all forms of procurements, including: guide and project specifications; construction, renovation, repair, maintenance and energy service contracts, lease agreements and solicitations for offers. Energy performance requirements should be included in all evaluations of solicitation responses. Model language to assist agencies with incorporating these performance requirements into their procurement documents is available at http://www.eere.energy.gov/femp/procurement/eeep_modelang.cfm.

The federal supply sources for refrigerators are the General Services Administration (GSA) and Defense Logistics Agency (DLA). GSA sells refrigerators through its Multiple Awards Schedules program and on-line shopping network, *GSA Advantage!* DLA offers them through the Defense Supply Center Philadelphia and online through DoD *EMall*. Note that not all refrigerators sold by GSA and DLA are ENERGY STAR-qualified and some that do qualify may not be indicated as such. When buying refrigerators through these sources, check the models you are considering against the list of qualified products on the ENERGY STAR web site to assure they meet this *Specification*.

Size and Type Selection

Select a refrigerator size that is appropriate for the number of people and level of use in your office suite, household, etc. Choosing an oversized refrigerator will increase purchase cost and also waste energy. Because side-by-side refrigerator-freezers and products with through-the-door ice typically use more energy than other models, federal buyers should avoid products with these features.

Cost-Effectiveness Example

Performance	Base Model ^a	Required	Best Available ^b
Annual Energy Use	489 kWh	440 kWh	387 kWh
Annual Energy Cost	\$29	\$26	\$23
Lifetime Energy Cost ^c	\$387	\$347	\$307
Lifetime Energy Cost Savings	-	\$40	\$80

- a) The efficiency of the Base Model is the minimum allowed by current US DOE appliance standards.
- b) More efficient products may have been introduced to the market since this specification was published. Information on the best available model was obtained from the ENERGY STAR refrigerator products list (see *For More Information*).
- c) Lifetime energy cost is the sum of the discounted value of the annual energy costs based on average usage and an assumed refrigerator life of 19 years. Future energy price trends and a discount rate of 3.0% are based on federal guidelines (effective from April, 2005 to March, 2006).

Cost-Effectiveness Assumptions

In this example, annual energy use is calculated with the standard DOE test procedure on 18.5 to 20.4 cubic foot refrigerators with top-mounted freezers and automatic defrost. The assumed electricity price is 6¢ per kWh, the average at federal facilities in the US.

Using the Cost-Effectiveness Table

In the example above, the *Required* refrigerator is cost effective if its purchase price is no more than \$40 above the price of the *Base Model*. The *Best Available* model is cost-effective if its price is no more than \$80 above that of the *Base Model*.

What if my Refrigerator Type or Electricity Price is different?

ENERGY STAR has an Excel-based cost calculator for refrigerators on its web site. Go to http://www.energystar.gov/index.cfm?c=refrig.pr_refrigerators, and click on Savings Calculator - Consumer Residential Refrigerators. Select the refrigerator type and input the rate for electricity at the top of the page. The output section will automatically display results that better reflect your conditions.

For More Information:

EERE Information Center
1-877-EERE-INF or 1-877-337-3463
www.eere.energy.gov/femp/procurement/

General Services Administration
(816) 926-6760
www.fss.gsa.gov/
www.gsaadvantage.gov/

Defense Logistics Agency
www.dla.mil/
www.emall.dla.mil/

Defense Supply Center Philadelphia
(800) DLA-BULB or (215) 737-7950
www.dsccp.dla.mil/

EPA/DOE ENERGY STAR has lists of qualified refrigerators at:
(888) 782-7937
www.energystar.gov/products/

American Council for and Energy Efficient Economy (ACEEE) publishes the *Consumer's Guide to Home Energy Savings* which contains a chapter on food storage and list of energy-efficient refrigerators. This guide is available from ACEEE at:
(202) 429-0063
www.aceee.org/

Federal Trade Commission lists the annual energy use of refrigerators and other appliance data on its web site at:
www.ftc.gov/energy/

Lawrence Berkeley National Laboratory provided market research and life cycle cost analysis in support of this energy-efficiency purchasing specification.
(202) 646-7950

A Strong Energy Portfolio for a Strong America

Energy efficiency and clean, renewable energy will mean a stronger economy, cleaner environment, and greater energy independence for America. Working with a wide array of state, community, industry, and university partners, the U.S. Department of Energy's Office of Energy Efficiency and Renewable Energy invests in a diverse portfolio of energy technologies.



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